

REMARKS

Claims 1, 2, 4, 6-11, and 20 are pending in the application. This Amendment currently amends claims 1 and 2. Claims 3, 5, 12-14, and 21-31 are canceled without prejudice or disclaimer and claims 15-19 are withdrawn from current consideration. No new matter is added to currently amended claims 1 and 2. Claims 1, 2, 4, 6-11, and 20 are currently amended to merely clarify the subject matter of the claims and in no way narrow the scope of the claims in order to overcome the prior art or for any other statutory purpose of patentability.

Notwithstanding any claim amendments of the present Amendment or those amendments that may be made later during prosecution, Applicants' intent is to encompass equivalents of all claim elements. Reconsideration in view of the foregoing amendments and the following remarks is respectfully requested.

Claims 12-14, 21, 27, 28 and 30 stand rejected under 35 U.S.C. §102(e) as anticipated by U.S. Patent No. 5,563,422 to Nakamura et al. (hereinafter, Nakamura '422). Claims 1, 2, 4-11, 20, and 22-26 stand rejected under 35 U.S.C. §103(a) as unpatentable over Nakamura '422 in view of U.S. Patent No. 5,408,120 to Manabe et al. (hereinafter, Manabe) and U.S. Patent No. 5,777,350 to Nakamura et al. (hereinafter, Nakamura '350).

This rejection is respectfully traversed in view of the following discussion.

I. THE CLAIMED INVENTION

The claimed invention, as described in claim 1, is directed to a light-emitting semiconductor device having a Group III nitride compound semiconductor that comprises a surface layer made of p-type conduction, an electrode layer formed on the surface layer, and an electrode pad, which comprises a first metal layer formed on the electrode layer formed on the surface layer, a second metal layer formed on the first metal layer, and a third metal layer formed on the second metal layer, and a protective film over the third metal layer and entirely of the electrode layer, the protective film leaving exposed a central portion of the third metal layer, the electrode layer being capable of passing an emitted light, the electrode pad being capable of supplying a current to the electrode layer, and in which the second metal layer is made of gold (Au), the first metal layer comprises at least one of iron (Fe), copper (Cu),

chromium (Cr), tantalum (Ta), vanadium (V), manganese (Mn), aluminum (Al), and silver (Ag), and the third metal layer comprises aluminum (Al) that has an adhesiveness to the protection film which is stronger than gold (Au) and etching an inner side of the protective film is prevented when a portion of the protective film corresponding to the central portion is etched and the protective film is left on an upper surface of the third metal layer except for the central portion.

II. THE PRIOR ART REJECTIONS

The Nakamura '442 Reference

Fig. 1 of Nakamura '442 discloses a group III compound semiconductor device with a p-type upper layer 13 and an electrode consisting of a layer of Ni with a layer of Au on top (col. 5, line 49).

The Manabe Reference

The Examiner cites Manabe to modify Nakamura '442 to include an Al layer.

The Nakamura '350 Reference

The Examiner cites Nakamura '350 to show that the silicon oxide protective layer is SiO₂ (col. 34, line 66).

Claim 1 recites at least the features of "an electrode pad comprising: a first metal layer ... wherein ... said first metal layer comprises at least one of iron (Fe), copper (Cu), chromium (Cr), tantalum (Ta), vanadium (V), manganese (Mn), aluminum (Al), and silver (Ag)."

Nakamura '442 discloses that an electrode, presumably corresponding to the first metal layer of the claimed invention, consists of a layer of nickel (Ni) with a layer of Au on top. In contrast, the first metal layer of the claimed invention comprises "at least one of iron (Fe), copper (Cu), chromium (Cr), tantalum (Ta), vanadium (V), manganese (Mn), aluminum (Al), and silver (Ag)."

Nowhere does Nakamura '442 disclose, teach or suggest an electrode, corresponding to the claimed invention's first metal layer, that comprises at least one of iron (Fe), copper (Cu), chromium (Cr), tantalum (Ta), vanadium (V), manganese (Mn), aluminum (Al), and silver (Ag), as recited in claim 1.

Similarly, nowhere does Manabe or Nakamura '350 disclose, teach or suggest an electrode, corresponding to the claimed invention's first metal layer, that comprises at least one of iron (Fe), copper (Cu), chromium (Cr), tantalum (Ta), vanadium (V), manganese (Mn), aluminum (Al), and silver (Ag), as recited in claim 1.

By this Amendment, claims 12-14, 21, 27, 28, and 30 are canceled without prejudice or disclaimer; hence, the rejection of claims 12-14, 21, 27, 28, and 30 is moot. Withdrawal of the rejection of claims 12-14, 21, 27, 28, and 30 under 35 U.S.C. §102(e) is respectfully solicited.

Manabe and Nakamura '350 do not cure the deficiencies of Nakamura '442. For at least the reasons outlined above, Applicants respectfully submit that Nakamura '442, Manabe, and Nakamura '350, either individually or in combination, do not teach or suggest every feature of claim 1. Accordingly, Nakamura '442, Manabe, and Nakamura '350, either individually or in combination, do not render obvious, the subject matter of claim 1 and claims 2, 4-11, 20, and 22-26, which depend from claim 1, under 35 U.S.C. §103(a). By this Amendment, claims 5 and 22-26 are canceled without prejudice or disclaimer; hence, the rejection of claims 5 and 22-26 is moot. Withdrawal of the rejection of claims 1, 2, 4-11, 20, and 22-26 under 35 U.S.C. §103(a) as unpatentable over Nakamura '442 in view of Manabe and Nakamura '350 is respectfully solicited.

III. CONCLUSION

In view of the foregoing, Applicant submits that claims 1, 2, 4, 6-11, and 20, all the claims presently pending in the application, are patentably distinct over the prior art of record and are in condition for allowance. The Examiner is respectfully requested to pass the above application to issue at the earliest possible time.

Should the Examiner find the application to be other than in condition for allowance, the Examiner is requested to contact the undersigned at the local telephone number listed below to discuss any other changes deemed necessary in a telephonic or personal interview.

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The Commissioner is hereby authorized to charge any deficiency in fees or to credit any overpayment in fees to Attorney's Deposit Account No. 50-0481.

Respectfully Submitted,

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Peter A. Balnave

Peter A. Balnave

Reg. No. 46,199

McGinn & Gibb, PLLC
8321 Old Courthouse Road
Vienna, Virginia 22182-3817
(703) 761-4100
Customer No. 21254